DOCUMENT RESUME

ED 343 714 PS 020 458

AUTHOR Young, Kathryn T.; Marx, Elisabeth
TITLE What Does Learning Mean for Infants and Toddlers? The Contributions of the Child, the Family, and the Community. Report No. 3.
INSTITUTION Center on Families Communities, Schools and Children's Learning.; Johns Hopkins Univ., Baltimore, Md.; Smith Richardson Foundation, Inc., Greensboro, N.C.
SPONS AGENCY Department of Health and Human Services, Washington, D.C.; Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE Mar 92
CONTRACT R117Q00031
NOTE 51p.
AVAILABLE FROM Center on Families, Communities, Schools, and Children's Learning, The Johns Hopkins University, 3505 North Charles Street, Baltimore, MD 21218 ($4.80).
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Academic Achievement; *At Risk Persons; Child Development; Child Welfare; Community Involvement; Community Programs; *Community Role; *Early Intervention; Family Role; Health Needs; *Infants; Interpersonal Competence; Parent Education; *Parent Role; Preschool Education; Program Descriptions; Socialization; *Toddlers
IDENTIFIERS Developmentally Appropriate Programs

ABSTRACT

This paper discusses ways in which communities can enhance a family's ability to foster learning in the first 3 years of their child's life so that the child will be academically, emotionally, and socially competent in the transition to preschool and school. The paper focuses on model community-based programs that serve high risk families with infants and toddlers. The first section offers a selective review of the literature on development. Emphasized are five areas of investigation that are central to the idea of learning and development in the first 3 years of life: (1) cognitive competence and continuity; (2) the role of nurturing and sensitive adults; (3) cultural beliefs about early development; (4) physical development and health; and (5) the influence of communities on individual outcomes. The second section reviews programmatic and community responses to the needs of families with young children. Knowledge about the efficacy of model programs and policies that serve young children and their families is evaluated. The review spans five areas: cognitive and educational intervention, family support and education, health, comprehensive support programs for families, and family policy. Included is a list of questions that grew out of the review that point to potentially useful lines of inquiry in research and policy. Appended are 72 references. (GLR)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED343714

CENTER ON FAMILIES, COMMUNITIES, SCHOOLS & CHILDREN'S LEARNING

What Does Learning Mean for Infants and Toddlers?

The Contributions of the Child, the Family, and the Community

Kathryn T. Young and Elisabeth Marx

Report No. 3 / March 1992

PS 020158

BEST COPY AVAILABLE

CENTER ON FAMILIES,
COMMUNITIES, SCHOOLS
& CHILDREN'S LEARNING

Consortium Partners

Boston University, School of Education,
Institute for Responsive Education,
605 Commonwealth Avenue, Boston, MA 02215 (617) 353-3309 fax:(617) 353-8444
The Johns Hopkins University,
3505 North Charles St., Baltimore, MD 21218 (410) 516-0370 fax:(410) 516-6370
The University of Illinois, 210 Education Building,
1310 S. Sixth Street, Champaign, IL 61820 (217) 333-2245 fax:(217) 333-5847
Wheelock College,
45 Pilgrim Road, Boston, MA 02215 (617) 734-5200 fax: (617) 566-7369
Yale University,
310 Prospect Street, New Haven, CT 06520 (203) 432-9931 fax: (203) 432-9933

For more information on the work of the Center, contact:
Owen Heleen, Dissemination Director,
Institute for Responsive Education,
605 Commonwealth Avenue, Boston, MA 02215 (617) 353-3309 fax:(617) 353-8444

National Advisory Panel

Robert Bartman (Chair), Commissioner of Education, Missouri Department of Education, Jefferson City MO

Barbara Bowman, Erikson Institute, Chicago IL

James Comer, Maurice Falk Professor of Child Psychiatry, Yale Child Study Center, New Haven CT

Sanford M. Dornbusch, Director, Family Study Center, Stanford University, Stanford CA

Susan Freedman, Director, Office of Community Education, Massachusetts Department of Education, Quincy MA

Frieda Garcia, Executive Director, United South End Settlements, Boston MA

Evelyn K. Moore, Executive Director, National Black Child Development Institute, Washington DC

Jonathan Sher, Director, North Carolina REAL Enterprises, Chapel Hill NC

Nora Toney, Teacher, David A. Ellis School, Roxbury MA

Rafael Valdivieso, Vice President for Program and Research, Hispanic Policy Development Project, Washington DC

Robert Witherspoon, Director, National Parent Center, National Coalition of Title I Chapter 1 Parents, Washington DC

What Does Learning Mean for Infants and Toddlers?

The Contributions of the Child, the Family, and the Community

Kathryn T. Young and Elisabeth Marx

Smith Richardson Foundation

Report No. 3

March 1992

Published by the Center on Families, Communities, Schools, and Children's Learning. The Center is supported by the U.S. Department of Education Office of Educational, Research and Improvement (R117Q 00031) in cooperation with the U.S. Department of Health and Human Services. The opinions expressed are the authors' own and do not represent OERI or HHS position on policies.

CENTER ON FAMILIES, COMMUNITIES, SCHOOLS & CHILDREN'S LEARNING

The nation's schools must do more to improve the education of all children, but schools cannot do this alone. More will be accomplished if families and communities work with children, with each other, and with schools to promote successful students.

The mission of this Center is to conduct research, evaluations, policy analyses, and dissemination to produce new and useful knowledge about how families, schools, and communities influence student motivation, learning, and development. A second important goal is to improve the connections between and among these major social institutions.

Two research programs guide the Center's work: the Program on the Early Years of Childhood, covering children aged 0-10 through the elementary grades; and the Program on the Years of Early and Late Adolescence, covering youngsters aged 11-19 through the middle and high school grades.

Research on family, school, and community connections must be conducted to understand more about all children and all families, not just those who are economically and educationally advantaged or already connected to school and community resources. The Center's projects pay particular attention to the diversity of family cultures and backgrounds and to the diversity in family, school, and community practices that support families in helping children succeed across the years of childhood and adolescence. Projects also examine policies at the federal, state, and local levels that produce effective partnerships.

A third program of Institutional Activities includes a wide range of dissemination projects to extend the Center's national leadership. The Center's work will yield new information, practices, and policies to promote partnerships among families, communities, and schools to benefit children's learning.

Abstract

In this paper, we discuss how, during the child's first three years of life, communities can enhance a family's ability to care for, nurture, and foster learning so that the child will be academically, emotionally, and socially competent as he or she makes the transition to preschool and school. We briefly review the research on perceptual and cognitive development in very young children, the role of nurturing adults in a child's early years, the effects of parenting on development, and children's health needs in the first years of life. We then review the evidence on programs that have proven to be effective in enhancing very young children's cognitive, emotional, and social competencies. Whenever possible, we identify when programs have proven to be directly effective in helping children adjust to or perform in school. We also identify those instances where school environments are believed to mediate the long-term effects of programs targeted at infants and toddlers.

We limit our review of the developmental literature to rigorous research studies and our review program interventions to those that have been rigorously evaluated. This excludes some community-based programs that show promise in their effectiveness, and also means that our review considers only programs that have targeted families of infants and toddlers most at risk of developmental problems, because these families have been the focus of most research. Thus, this review emphasizes our "best knowledge" about effective interventions on behalf of some of the nation's most at risk families.

Introduction

It is commonly agreed that a child's most critical period of development is the first few years of life. It is a time in which many developmental changes and mastery take place intellectually, socially, emotionally, and physically. Child developmentalists and society, in general, believe that the nature and characteristics of the early experiences a child has profoundly influence developmental processes and outcomes beyond the early years.

Although the reciprocal pathways of influence between the developing child and parents are complex, families, especially parents, are the principal nurturing, socializing and educating influences for very young children. For example, the infant whose parents encourage intellectual competence and curiosity may develop into the toddler who frequently asks questions of his parents, receives informative answers, and as a consequence, continues to display intellectual competence in the preschool and school age years (Belsky, Learner & Spanier, 1984).

Despite dramatic changes in the structure and function of the American family, parents continue to serve a primary role in influencing their children's growth and development. However, more and more researchers, educators and service providers have come to realize that at times all families need community resources to assist them in providing the necessary conditions for their children's healthy development so that they grow up to be socially and academically competent (Hamburg, 1990). This paper will discuss how, during the child's first three years of life, communities can enhance a family's ability to care for, nurture, and foster learning so that the child will be academically, emotionally, and socially competent as he or she makes the transition to preschool and school.

The definition of learning varies widely when discussing children under three. Recently, there has been a trend towards equating learning in the early years with more formal or academic structural methods. Many experts in the field argue for a broader definition that focuses on the unique developmental needs of children under three, recognizing that "learning" is one dimension of development (Bredekamp, 1987; Elkind, 1986). In this paper, we define learning in the early years as meeting the multiple cognitive, social, emotional and health needs of children at developmentally appropriate levels. We assert that developmentally appropriate learning can be enhanced by community efforts in parent education, family support, maternal and child health services, as well as by early education and intervention programs.

This report focuses on the role and utility of community-based efforts that serve very young children and their families. The first section consists of a selective review of the developmental literature. We emphasize areas of investigation that seem most central to the idea of learning and development in the first three years of life: (1) cognitive competence and continuity, (2) the role of nurturing and sensitive adults, (3) cultural beliefs about early development, (4) physical development and health, and (5) the influence of communities on individual outcomes. These areas were selected to provide us with a sound knowledge base to explore why certain intervention programs make sense.

The second section discusses programmatic and community responses to the needs of families with young children. Current knowledge is evaluated about the efficacy of model programs and policies that serve very young children and their families. The review spans four domains: cognitive and educational intervention, family support and education, health, and family policy.

We also include a separate section reviewing comprehensive programs. This section also discusses the ways in which communities impede or enhance child and family functioning. For this discussion we draw on a wealth of research and program experience about early education and family supports from throughout this nation, and turn to a cross-national perspective to look at health programs and family policies. Lastly, we summarize what we know about the effectiveness of interventions and policies presented in this paper and possible next steps for research and policy.

In order to focus specifically on those content areas in the developmental and intervention literatures that most directly inform our thinking about the role of communities in enhancing a family's ability to foster social, cognitive, emotional competence in the first three years of a child's life, many related topics were judged to be beyond the scope of this paper and necessarily excluded from this discussion. Specifically omitted are discussions about: children's play, family literacy, analysis of measurement issues, needs of and programs for families with children facing medical or physical disabilities, problematic maternal behaviors (e.g., drug abuse), and problems and challenges related to child maltreatment. Further, we excluded from discussion programs that impact very young children, yet are targeted at larger social concerns, such as the Family Support Act. Finally, we note that however successful community efforts are, they do not operate in a vacuum and that their long-term effectiveness can be mitigated by larger social, economic, and demographic influences such as lack of housing, persistent poverty, drugs, and chronic violence.

I. Infants and Toddlers: Review of Developmental Issues

The study of early cognitive, emotional, social, and physical development helps adults know what to expect of children in the early years and facilitates their ability to evaluate the conditions under which very young children thrive and are able to learn. Critical to our understanding of families' needs and communities' roles in helping families meet those needs is acknowledgment that researchers have identified that infants and toddlers are far more complex and capable than was previously thought. First, young children are active learners as they try to make sense of the world; they see more, hear more, understand more than previously acknowledged and are capable of forming relationships with any adult who truly cares for them.

Second, infants and toddlers actively affect their own development (Bell & Harper, 1977). They are not passive recipients of the attentions of well-meaning adults, but are equipped with and have the capacity to develop an effective behavioral repertoire to initiate and maintain contact with people. Very young children and their parents reciprocally influence each other as they both develop and change.

Third, development and change in one area almost certainly accompanies or facilitates change in other areas. For instance, learning to walk has implications for both social and cognitive development. The toddler who is mobile can explore, view, and manipulate a whole new array of objects and is far less dependent on adults to provide experiences for stimulation than is an infant (Lamb, 1982).

Fourth, child development and family functioning are best understood within an ecological perspective that attempts to put the young child and family within a complex system of biologic, psychological, behavioral, community, economic, and sociological factors (Bronfenbrenner, 1979; Olds and Kitzman, 1990).

Cognitive Competence and Continuity in the Early Years

Since the 1960s there has been a great deal of research on early perceptual and cognitive development in children. Investigators have documented that infants are born with a crude yet effective set of perceptual and sensory skills through which they gather information about their environment. Within three years, infants and toddlers accumulate a vast amount of knowledge that includes the ability to speak the language they hear and figure out mentally how to achieve a goal. We know that infants as young as four weeks old have the ability to learn, and for infants and toddlers this learning takes place through experiences and interactions that allow repetition, observation and imitation. These experiences allow these very young children to maintain an affective and intellectual equilibrium for creating and

testing new capacities. The very young child's innate ability and delight with learning is apparent as he or she attends to various aspects of the environment and begins to understand about objects, events, and people.

Infants and toddlers are naturally attracted to people and thrive on one-to-one communication with parents and other caring adults. Although experts have long recognized that adults play a significant role in the young child's socio-emotional development, we have only recently begun to understand the extent to which adults are important to the infant's cognitive development (Sherrod & Lamb, 1981). Specifically, adults can be viewed as complex social stimuli. Infants and toddlers, through their interactions with adults, learn how to develop schemas and integrate information about their world into mental representations of objects, actions, and people. Although Piaget's theory of cognitive development has been critical in its contribution to our understanding of the nature and process of how children develop the ability to think, research of the past two decades has enriched our knowledge of early mental development by documenting that infants and toddlers also need attention, stimulation, conversation, and encouragement from adults in order to learn (Clarke-Stewart & Koch, 1983).

A significant amount of longitudinal research comprised of developmental testing in infancy followed by traditional psychometric assessments of intelligence at a later age has documented that there is little correlation between cognitive performance in the first four years of life and intelligence in older children and adults (Bayley, 1949; Honzik, 1983; Kopp & McCall, 1980). This finding of discontinuity in cognitive development has fostered the belief that while children under three certainly were learning, whatever they learned did not have a significant relation to later cognitive competence as measured and valued in our society. This notion that learning related to intelligence starts at age three or later has been manifest in the labeling of programs for children three and over as "schools," while programs for children under three provide "care."

Bornstein and Sigman (1986) challenge the discontinuity hypothesis. They suggest that there is moderate continuity in mental development and that the discontinuity hypothesis is supported because of the limitations in the way early mental development has been "conceived, operationalized, and standardized in developmental tests such as the Bayley." These investigators cite numerous studies that report significant associations between specific cognitively reinforcing caregiving activities that parents or other adults do with infants and toddlers (e.g., encouraging the young child to attend to events, people, and objects) and measures of visual attention in the first months and years of life that predict intelligence test performance at four years of age (Beckwith & Cohen, 1984;1985; Bornstein & Ruddy, 1984; Clarke-Stewart, 1973).

Findings suggesting that cognitive growth proceeds as a continuous "organism-environment interaction" (Bornstein & Sigman, 1986) support theoretical notions that mental development is continuous and that the early experiences a child has with responsive adults influences later intellectual functioning. These investigators suggest that interest in the infant's mind and what fosters cognitive competence in these early years is important because of its "recognized cultural value to communication, literacy, academic achievement, work performance, and social adaptation." Clearly, what is happening mentally in the first three years of life is associated with later intellectual functioning. Ultimately, this knowledge can be useful in identifying and supporting the unique roles families and communities have as they foster the social, emotional, and cognitive development of infants and toddlers.

The Role of Nurturing and Sensitive Adults in the Child's Early Years

Common sense and scientific knowledge tell us that adults and particularly parents play important roles in the very young child's cognitive and socio-emotional development. Adults are social partners who interact with infants and toddlers within and outside of the caregiving routines, pacing the child's behavior and modeling the reciprocal patterns that characterize social interactions. Sherrod (1981) suggests that adults, particularly parents, also satisfy basic biological needs in response to the infant's signals and by doing so foster feelings of personal effectiveness in the infant. These types of effective reciprocal interactions are central to the young child's developing sense of self and also provide the basis for intellectual competence and curiosity.

In reviewing the extensive literature on maternal influences in a child's development, Belsky and his colleagues (Belsky, Lerner & Spanier, 1984) identified five key dimensions that are predictors of individual differences in infant intellectual functioning, language comprehension, and exploratory behavior:

> Attentiveness. Attentiveness is defined as the mother paying visual attention to the infant.
>
> Physical Contact. Physical contact means more maternal involvement than just attending to the infant. It is defined by such activities as holding, rocking, and jiggling the infant.
>
> Verbal Stimulation. While physical contact requires a higher degree of contact than attentiveness, verbal stimulation or the mother's talking or singing represents an even richer type of experience for the infant. This type of verbal stimulation also requires more involvement on the infant's part as the mother is attempting to engage the infant's attention and get a response.

Material Stimulation. Stimulation with objects or toys does not simply reflect the number of objects in the infant's environment but rather a more complex process of how the mother interacts with the infant to introduce, use, and enjoy objects.

Responsive Care. The sensitivity and the appropriateness of maternal responses to infant behaviors are developmentally very important. Being responsive demands what is called "turn taking" as the mother contingently responds to the infant's smiles, cries, or body movement.

Although the majority of developmental research studies has focused on characteristics of the mother-infant relationship, we would suggest that the same maternal characteristics are influential in the healthy development of toddlers, and that these characteristics are not the sole province of mothers, but rather should also be extended to include fathers and other adult caregivers with whom infants and toddlers have relationships in out-of-home settings.

Beliefs about Infants and Early Development

Current interest in the beliefs parents have about young children stems from an awareness that the ideas parents construct about development and parenting may be related to how they behave and the experiences they provide for their children (see Sigel, 1985). As communities make efforts to work with families to provide support that will enhance the social, emotional, and academic development of infants and toddlers, it is important to have an understanding of what parents actually believe about these very young children.

Goodnow (1982) suggests that parental beliefs do not exist in a vacuum, but are affected both by specific information about child development and an array of broader cultural values and societal influences. Kagan and his colleagues (Kagan, Kearsley & Zelazo, 1978) suggest that the scientific community and our culture's thinking about very young children has been influenced repeatedly by four notions that reflect our culture's ideology of development: the importance of early experience on later development, the centrality of the mother-infant relationship, continuity of development, and the primacy of the family as the nurturing unit in our society. These notions have often guided experts' thinking in what they tell parents and been the basis of multiple lines of psychological research and thought, and delivery of services.

In a recent analysis of parents' beliefs about infant development, the data revealed a blending of scientific knowledge and cultural ideologies in what parents know and believe to be important about infants (Young, 1991). First-time, middle-class parents of infants in the study demonstrated a general grasp of child development information: they know infants have a developing mind, that infants are active learners who like stimulation and novelty, and

that infants have developing capacities that allow them to seek out and respond to different environmental stimuli. Parents also believed very strongly in cultural ideologies that value the influence of parents and the role that early experience plays in later development. Specifically, parents stated that the first six months of an infant's life are important for infants and parents, that parents play a large part in shaping their infant's world, and that it is important for parents to provide an environment that allows for interactive play opportunities.

The identification of parental beliefs has important implications for professionals concerned with supporting families and developing effective community initiatives that enhance the healthy development of children under three. As community programs work with young families, it is very helpful to understand that the beliefs parents maintain about the development and care of young children often serve as the organizer or motivator of how parents relate to their children and the experiences parents provide to them.

Physical Development and Health Needs in the Early Years

Remarkable physical and physiological changes take place in the child during the first three years of life. Many of these changes -- in physical growth, neural development, and motor ability, for instance -- are readily apparent. For instance, the infant changes from an immature organism that cannot coordinate the movements of his or her limbs and communicates by crying to a toddler who can purposefully control a complicated sequence of muscle contractions in order to walk, and has the linguistic and cognitive abilities to use language to communicate his or her needs to an adult. Although there are individual differences in the rate of growth, the process follows a predictable and orderly sequence that is governed by innate or genetic influences and a very young child's interaction with the environment.

One of the most important aspects of physical growth within the first few years is changes in the maturation of the brain. Brain maturation is important not only for physical growth but also has far-reaching implications for psychological development. The more mature the brain is, the more able infants and toddlers are to understand and act upon the environment and communicate with others. Although much of the recent research on the brain has focused on understanding the structure and growth of the brain and its relation to human behavior, there also has been a growing recognition that normal brain growth results from an interaction of biological factors and environmental inputs (Zigler & Finn-Stevenson, 1987).

Although genetic differences account for variations in the rate of a child's physical growth, environmental influences such as nutrition, health care, cognitive stimulation, and consistent

contact with caring adults contribute significantly to the quality of the very young child's overall development. It is known that malnutrition has far-reaching effects on the developing child's physical and cognitive capacities (The American Academy of Pediatrics, the National Commission to Prevent Infant Mortality, the National Commission on Children, and the House Select Committee on Children, Youth and Families, 1990; Children's Defense Fund, 1991). Malnutrition results from inadequate and poor nutrition, but more recently it has been determined that children can suffer from "emotional malnutrition." This can occur when infants and toddlers are in highly-stressed caregiving arrangements such as with inconsistent, uneducated, or socially unresponsive caregivers (Phillips, Scarr, & McCartney, 1987; Whitebook, Howes, & Phillips, 1990).

The physical, intellectual, emotional, and social development of infants and toddlers is optimized when a child is healthy. Although the health of a child is determined by more than medical care, there are preventive health services that need to be provided to very young children and their parents: nutrition, immunizations, well-child and primary health care, and basic safety and sanitation measures (The American Academy of Pediatrics, et al., 1990; Klerman, 1990). As children, those under three are the most vulnerable to many infections and illness. The increase in the availability of preventive health care and immunizations in the United States, while far from sufficient, has dramatically improved the health of these children in the past thirty years. Preventive health services such as immunizations and developmental screening are cost-effective. They are instrumental in reducing visual and hearing deficits and positively influence learning and language development in very young children (American Academy of Pediatrics et al., 1990).

Although the availability of health care for very young children in the United States has improved, there are still problems that compromise children's health. The most influential factor is poverty. One out of every five children grows up in poverty. These children are exposed to malnutrition and poor health, which have been linked to problems in motivation and achievement (Klerman, 1990). Although Medicaid provides health care to the most needy children, there are financial barriers and varying state requirements that compromise its efficacy. It is well known that the United States lags behind other nations in preventive health care and that every developed country except South Africa and the United States has health insurance for children. Data indicate that children who have health insurance use health services more often and have better health outcomes than children who do not have insurance (American Academy of Pediatrics, et al., 1990).

The health needs of very young children cannot be separated from their physical, educational, developmental, and social needs. Recognizing this interdependence, it is important to consider these health needs as we articulate the role of community services and supports in the lives of these very young children and their parents.

The Role of Communities in Shaping the Lives of Very Young Children

There is a burgeoning interest in understanding the role of neighborhoods and communities in shaping the lives of children and families. In the ecology of human development, families do not exist as separate units but are linked to wider formal and informal networks. Broader community settings and characteristics exert influences on families and children through demographics, features of the physical environment, and behavioral patterns (Bronfenbrenner, Moen & Garbarino, 1984).

Gephart's work (1989) outlines the complicated processes by which neighborhood characteristics affect individual outcomes. She believes that the effects are likely to be indirect, with the impact depending upon the interaction of neighborhood characteristics with those of families, households, social networks, and individuals. She also observes that characteristics of neighborhoods and communities serve as mediators between broader social processes in society, the economy, culture, and children and families. In reviewing the literature, Gephart identified the following community characteristics as having an influence on children and families: concentration and persistence of poverty, richness of resources, the quality of housing, the number and functioning of institutions, schools, welfare, health and child care organizations, the extent of racial and ethnic segregation, and the degree of social isolation.

Cotterell (1986) hypothesizes that the psychological environments that parents establish around their children will be related to the concerns and experiences that parents bring to the home from these broader networks. Although there is a great deal yet to be learned about the effects of communities on individual outcomes, Cotterell (1986) summarizes a growing body of research that suggests the quality and characteristics of a community's social support networks are an important factor in the quality of the mothers' child rearing expectations and behavior. Thus, mothers who have and utilize social networks in the community appear to be more sensitive, responsive, and have more positive interactions with their infants and very young children.

Cochran and Brassard (1979) identified three paths of influence of a community's social networks on maternal behavior and indirectly on a child's developmental course: (1) the provision of emotional and informational supports, (2) the exercise of social expectations on mothering styles, and (3) the provision of models of parenting behavior and social relationships. Gephart (1989) suggests that mothers with high levels of support are probably able to use community resources to more advantage than are those with low levels of support. It is not sufficient to have a community with a great many programs without some sort of social or other network to help families learn how to access and utilize these programs.

There is some evidence to support the notion that supportive social networks in the community provide resources to the mother and family to buffer stress and serve an educational function (Garbarino, Schellenbach, & Kostelny, 1987). We need to continue to investigate how families manage and children are influenced by community environments that are characterized by danger and violence, poor schools, scarce resources, poverty and other inadequate supports and barriers to achievement (Garbarino, Kostelny, & Dubrow, 1990; Gephart, 1989; Richters, & Martinez, 1991). There is also scarce information about the interactive and cumulative influence of formal and informal programs and characteristics of the community on how well children and their parents are functioning and how this changes over time.

II. Programmatic and Community Responses

Researchers, policy makers, and program designers have interpreted developmental studies of infants and toddlers, including those that we reviewed, to suggest that developmental outcomes for children birth to age three might be positively influenced through programs and policies that serve very young children and their families. Accordingly, model programs and policies have been developed in the areas of early education and intervention, family support, health, and family policy to test their ability to enhance children's development.

Guided by the mission to identify how communities can influence families' ability to care for, nurture and foster learning and development of children birth to three, this section reviews programs that have proven to be effective in enhancing very young children's cognitive, emotional, and social competencies. Whenever possible, we identify when programs have proven to be directly effective in helping children adjust to or perform in school. We also identify those instances where school environments are believed to mediate the long-term effects of programs targeted at infants and toddlers.

Just as we have limited our review of the developmental literature to rigorous research studies, we limit our review of program interventions to those that have been rigorously evaluated. Necessarily, this excludes some community-based programs that show promise in their effectiveness (Halpern, 1990), and that we believe ought to be the focus of more rigorous evaluation. This proviso also means that our review only considers programs that have targeted families of infants and toddlers most at risk of developmental problems, since these families are of greatest concern to developmentalists and public policy makers and have been the focus of most research.

Thus, this review emphasizes our "best knowledge" about effective interventions on behalf of some of the nation's most at risk families. This knowledge may help policy makers

identify the resources communities could usefully put in place to help at risk families promote their children's development and eventual success in school. We believe that, because all families need support at some time with the rearing of their very young children, it is important for more work to be done to understand what types of supports would benefit these less vulnerable families.

Early Cognitive and Educational Interventions

Early research on the design and evaluation of center-based educational and cognitive interventions for young children was motivated by concern about the lower educational attainment of poor children. Lower-class children have been found to perform less well on standardized measures of intelligence and academic achievement both in this country and other developed nations (Seitz, 1990). The earliest work assumed that the most serious problem facing poor children was low IQ scores, and that interventions that provided stimulating environments could increase IQ levels and outcomes associated with IQ, including school achievement. Although much of the work to date has been done with children age three and older, a few studies have focused on infants and toddlers.

It is important to remember that IQ, as currently measured, is a limited assessment of cognitive competence, particularly for very young children. As noted earlier in this paper, early mental development proceeds as a continuous "organism-environment interaction," in which infants' and toddlers' caregiving experiences with adults influence their later intellectual functioning (Bornstein & Sigman, 1986). It is not surprising, then, that these early studies suggest that it is productive, but not sufficient, to focus interventions for very young children on cognitive development (Wasik, Ramey, Bryant, & Sparling, 1990; Seitz & Provence, 1990). These studies document that advances in children's cognitive development may dissipate over time unless attention is paid to the social and emotional development of the child and to problems in the community and family environments in which the child lives. A discussion of two particularly intensive educational interventions, the "Milwaukee Project" (Garber, 1988) and the "Abecedarian Project" (Ramey & Haskins, 1981; Ramey, Bryant, Campbell, Sparling, & Wasik, 1988), highlights these findings. Although these two projects were similar in many dimensions, they differed in their sample population and size and in the inclusion of an additional school-age intervention for some of the children in the Abecedarian Project.

<u>The Milwaukee and Abecedarian Projects</u>

The Milwaukee Project was developed in the mid-1960s in an effort to prevent retardation among the children of mentally retarded mothers. Black infants were recruited from very poor inner city neighborhoods and assigned in a quasi-random manner either to participate

in an intensive educational program or not receive the intervention. The final sample consisted of 17 experimental families and 18 control families. The children in the experimental group were enrolled in an educational enrichment program for seven hours per day, five days a week, between the ages of three to six months and remained enrolled until first grade. All of the mothers received vocational training during the first year.

The Abecedarian Project, based out of the Frank Porter Graham Child Development Center at the University of North Carolina in the early 1970s, was an intensive, long-term, educationally focused intervention. It consisted of a sample of 112 children from poor families that were predominantly Black and headed by a young unmarried mother. The children were randomly assigned at three months to experimental and control groups. About half of the children were enrolled in high-quality, cognitively focused infant child care six to eight hours per day, five days per week. The other half did not receive this intervention, and typically stayed at home (Frye, 1982; Seitz, 1990). Children in both the child care and "home" settings were provided with medical care, nutritional supplements, and social work services for their families. At admission to kindergarten, the 96 children who remained in the study were randomly assigned to experimental and control groups to receive a school-age intervention.

Significantly, Frye (1982) has identified the Abecedarian project as probably the only child care research program concerning infants to use a fully matched experimental design. Others use a quasi-experimental design, where random assignment is replaced by the matching of subjects or analysis of covariance. Fortunately, the results of the quasi-experimental and experimental studies support one another on the variables of standardized IQ test performance and mother-infant relationship (Frye, 1982)).

Findings from Cognitive Enrichment Interventions

Findings from the Milwaukee and Abecedarian projects strongly influenced future cognitive and educational interventions (Seitz, 1990). The two projects demonstrated that intensive supplemental cognitive stimulation beginning in infancy and lasting through school entry can lead to higher IQ scores in poor children. The children who received interventions in very early childhood had higher IQs than children in the control groups and maintained close to "normal" IQ scores during their school years (until age 14 for children in the Milwaukee Project and the third year of schooling for children in the Abecedarian Project).

A particularly important finding of the Abecedarian project was that the younger children were when they entered the program and the longer they continued to participate, the stronger the program's positive effects on poor children's school achievement. Children that began

the intervention at infancy and continued to receive an educational intervention to supplement their school activities had the lowest rates of grade retention.

Unfortunately, these studies also demonstrated that higher IQ scores at entry into school do not, in and of themselves, lead to better school performance for poor children. Although the intervention group children outperformed children in the control group in terms of academic achievement, the differences were not significant.

One reason suggested for performance levels below the promise of their higher IQ scores was proposed by researchers for the Milwaukee Project (Garber, 1988). They observed that, despite their near normal IQ scores, children in the intervention group were assigned to the lowest academic groups in their classrooms. As a result, any academic advantage that the experimental group children may have had at the beginning of the year may have been eroded by academic grouping practices. It is discouraging to note these lower levels of performance despite better school adjustment for intervention group children, defining adjustment as being promoted each year on schedule without requiring costly special school services.

This concern that children's adjustment to and performance in school over time may be related to other environmental factors, such as the quality of the school they attend, has also been expressed in studies of educational interventions with preschool children (Lazar & Darlington, 1982; Schweinhart & Weikart, 1981; Seitz, 1990). Specifically, these studies reported that differences in IQ scores eroded over time while positive outcomes for school adjustment among experimental group children were sustained over time.

Zigler has called one hypothesis regarding long-term positive effects the "snowball" theory (Seitz, 1990). In this theory, professionals have suggested that positive child outcomes may result from children having higher levels of confidence because of their higher IQ levels at school entry which may, in turn, have stimulated their teachers to treat them as being competent. This advantage compounded over succeeding years, even though control and experimental group children did not differ in IQ test scores in later grades. However, Seitz (1990) has suggested that this hypothesis may only apply to children entering certain school settings. It may be most relevant when the children who have received the intervention have significantly higher IQs than other children and when teachers and school have adequate resources to address the differential needs of enrolled children. Communities with schools serving large groups of economically and socially at risk youth rarely have the resources to meet children's needs on such an individualized basis.

Research findings and observations such as these point to the important effects of community environment, particularly schools, in the outcomes of cognitive, center-based programs.

Compelling evidence is also evident regarding the importance of community based family involvement and support programs in the success of cognitively focused efforts. An important dimension of the Perry Preschool Project that has received little attention was its extensive home visiting program (Seitz, 1990). In addition to the high quality Perry Preschool educational enrichment program, parents and their three- and four-year-old children received home visits of one and one half hours every week for more than 40 weeks a year for two years. The long-term effects of the program were positive, but the particular contribution of the visits on the children is not known. There is a strong possibility that parents learned about child development and thus became more comfortable interacting with teachers on behalf of their children. It may be that the cumulative and interactive effects of parent education and family support combined with the cognitive enrichment program for children were an important aspect of the long-term impact of that program. Research evidence regarding other home visitation and family support programs targeted at families with very young children, reviewed in the next section of this paper, explores this hypothesis and its possible implications for early cognitive interventions.

Pioneering Family Support and Education Programs

Family support and education programs have their roots in many older community institutions and activities (Weissbourd, 1987). Over time, parent education and support activities have grown from almost exclusively informal events, in which advice was shared among community leaders and families, to more formalized and institutionalized programs. As documented earlier in this paper, developmental research confirmed intuitive assumptions that the nature and quality of parents' caregiving activities have an important role in young children's cognitive, social, and emotional development. As a result, programs were developed to educate, support, and encourage parents in their caregiving role. Middle-class parents increasingly sought out programs designed to provide them with "scientific" knowledge about optimal child-rearing practices. Poor families with very young children, however, often have difficulty providing basic necessities, leaving little time and energy to seek parenting advice that would help them provide a more nurturing and stimulating environment. As a result, the government has developed outreach-oriented family support programs to poorer families.

Government programs for poor families have frequently combined two very different goals in these education and support programs (Halpern, 1990; Seitz, 1990). They attempt to enhance children's social, emotional, and cognitive development through the education of parents on issues of child development and care, while also working to help parents in their roles as adults, by providing assistance with basic skills and education, vocational training, employment counseling, and social service needs. These early educational interventions for children and education and support programs for parents were seen as mechanisms for

countering the effects of discrimination and poverty by providing opportunity and self-help skills to parents and a "head start" for their children.

Our discussion below highlights the numerous program outcomes still expected of model family education and support efforts. Powell (1987) has identified many problems associated with evaluating these complex interventions. He notes, in particular, the difficulty of assessing family functioning, parental behavior, social support, and variations in service delivery in a culturally sensitive manner. In the end, we agree with his assessment that the potential usefulness of research on family support programs outweighs its problematic character. Moreover, we assert that it is through research that our understanding of family, community, and program dynamics will be improved.

Parent-Child Development Centers and Child and Family Resource Programs

Two important federal government demonstration family support and education programs for families with very young children were initiated and evaluated in the early 1970s under the then newly created Office of Child Development. These two programs provide important early insights into the potential benefit of such interventions as well as the obstacles facing program designers and evaluators. Three Parent-Child Development Center (PCDC) demonstration program sites were designed to influence the critical mediating role of maternal behavior on child development and to help families access resources to overcome the range of situational difficulties facing poor families (Andrews, Blumenthal, Johnson, Kahn, Ferguson, Laster, Malone, & Wallace, 1982; Halpern, 1990; Johnson, 1988). The primary program thrust was to enhance life skills among mothers with children birth to age three. All three sites included health, social services, meals, and transportation services.

A second major federal family support initiative, the Child and Family Resource Programs (CFRP), was designed a few years later (Halpern, 1990; Travers, Nauta, & Irwin, 1982). This initiative focused more attention on developing parenting skills that could promote child development under the presumption that participants needed to develop specific parenting competencies as well as life skills to mediate the impact of negative family and neighborhood conditions. The CFRPs provided two years of monthly home visits to low-income families with children birth to age three. The home visitors were community members trained to address a wide range of family needs in addition to helping to develop parenting competencies and knowledge. Each of the programs was intended to be linked to a Head Start center that would provide families with health and social service resources.

The Yale Child Welfare Research Program

More recently, the Yale Child Welfare Research Program completed a ten year follow-up on their parent-focused intervention (Rescorla, Provence, & Naylor, 1982; Seitz, Rosenbaum, & Apfel, 1985). The goals of this project, as with the CFRPs, were to help disadvantaged parents support the development of their children as well as improve the quality of the family's life. This intervention was more intensive than the earlier program, however, and operated out of a university setting.

The sample consisted of 17 women, pregnant with their first child, who delivered healthy babies. Initial contact was made with the mothers during pregnancy and intervention services began at birth. Families and children in the intervention group received four possible services during the 30 month project period. A pediatrician saw the newborn daily during the post-delivery hospital stay, saw the children 13 to 17 times for well-child visits, and made house calls if necessary. Home visits were made by a clinical social worker, psychologist or nurse, depending on need, for an average of 28 visits. The home visitors providing counseling and support around a wide variety of issues, from immediate problems with obtaining adequate food or housing to advice regarding education, career, or marital issues. An infant and toddler program that focused on children's emotional and social development was available if parents chose to enter their child. (All but one child attended, for an average of 13 months, but participation ranged from 2 to 28 months.) The children also received seven to nine scheduled developmental assessments. The control group consisted of a matched sample of eighteen 30-month old children and their mothers, recruited after the project had ended. Although the Yale program was quite comprehensive in the services offered, we have not reviewed it with the other comprehensive programs because parents could and did choose to limit their participation in the cognitive enrichment component.

Findings from Early Family Support Programs

The Parent-Child Development Center (PCDC) program documented significant effects on maternal behaviors and maternal-infant interactions (Halpern, 1990). The behavior of mothers in the experimental group in such areas as emotional responsiveness, demonstration of affection, praise, appropriate control, and encouragement of verbalization was more positive than the behavior of mothers in the control group. The effects on infant development were modest, which is not surprising since the interventions focused largely on maternal competencies.

In a follow-up study of children ages 8 to 11 at the Houston site, researchers found that intervention group children scored significantly higher on tests of basic skills, while children in the control group, particularly boys, manifested significantly more behavioral problems.

It is important to note the PCDC program evaluation was plagued with an extremely high attrition rate, averaging 50%. The program's participation requirements were apparently difficult to combine with mothers' efforts to advance their own education or employment.

Surprisingly, the evaluators of the Child and Family Resource Programs (CFRPs), the initiative that emphasized parenting skills, found no effects on child development, and only modest effects on improvements in parental teaching skills (Halpern, 1990). However, they identified promising program-favoring effects for maternal self-control and general coping, use of community resources, and maternal participation in job training and employment. The evaluators suggest that the lay home visitors tended to address families' service and personal needs before concentrating on child development activities. Further, they observed that the child development activities were too heavily focused on talking and not enough on modeling, demonstration, and joint activity. These patterns may well have been the result of inadequate training and supervision, a finding that re-emerges concerning home visitors in interventions discussed later.

Some of the most salient findings resulted from the Yale Child Welfare Research Program (Seitz, 1990; Seitz, Rosenbaum, & Apfel, 1985). They found that long-term effects of the intervention were greater than the short-term effects. After ten years, the intervention group mothers were more likely to be self-supporting, had achieved higher levels of education, and had smaller family sizes than mothers in the control group. Intervention group mothers were significantly more likely to discuss their children's school performance with their children's teacher than control group mothers. Mothers in the intervention group were also more likely to report that they enjoyed their children and that their children were affectionate towards them. The two groups of children did not differ in IQ levels or in performance on standardized achievement tests. However, intervention group children had better school attendance than children in the control group, and boys in the control group had more negative behavior ratings and were much more likely to require special school services than intervention group boys.

These early studies of parent support and education programs validate findings in the developmental literature that suggest that positive parenting behaviors do foster the developing child's cognitive and social development (Belsky et al., 1984). The more directly that a program targeted parenting competencies, the more likely it achieved positive effects in that area. The findings also indicate that these interventions can encourage the use of existing community resources. The follow-up studies (e.g., PCDC, Yale Child Welfare Research Program) show very promising long-term effects of parent education on children's school adjustment. These findings build on the results of cognitive intervention programs that have indicated that parent involvement and education can result in lasting positive effects on children's social and school behavior.

Although we still know relatively little about the causal relationship between improvements in child-rearing skills, knowledge, and attitudes and parent behavior, these evaluations suggest that to achieve effects that are strong enough to have long-term impact, the intervention had to provide parent education training with considerable intensity by a well-trained and supervised staff that is sensitive to the beliefs and culture of the parents.

In addition, certain beliefs regarding parents' role in their children's development were confirmed by these evaluations. In particular, the studies corroborate the common understanding that parenting behavior and the experiences parents expose their children to have a strong influence over the behavior and developmental outcomes of their children. These findings hold promise that the positive effects of cognitive enrichment interventions can be supported and sustained through the complementary implementation of parent education and family support programs. This thesis is explored more thoroughly in the analysis of comprehensive programs that follows.

A final note on family support programs: These early research initiatives were complemented by a burgeoning of community-based programs. This base of community-initiated programs expanded steadily in the 1980s. In a review of four recently completed evaluations of community-based family support and education programs, Halpern (1990) found the programs to confirm the promising results of the PCDC, CFRP, and Yale studies. The data from these evaluations of community-based programs indicate that family support and education programs can influence parenting skills and life skills when the program clearly identifies its focus and structures its program curriculum and staffing accordingly. However, the data also suggest that when the program goals and content are too broad, spanning too many areas, there are fewer significant gains in a child's development.

Maternal, Infant and Toddler Health Care

Concern for the health of very young children is particularly high. There is a growing recognition that infants and toddlers unable to thrive physically as a result of inadequate health care are also unlikely to thrive emotionally, socially, or cognitively. As we have mentioned, brain maturation is a critical dimension of physical growth in the first few years of life and is necessary to social and emotional development as well as intellectual growth. Therefore, attention to environmental influences that promote healthy physical growth is critical to the success of cognitive and social interventions with infants and toddlers.

High infant mortality rates and virtual stagnation in their decline in the United States in the 1980s has alarmed many concerned with the future of our nation. The causes of these high rates are known (Hughes, Johnson, Rosenbaum, Simons, & Butler, 1987). They include a persistently high postneonatal mortality rate; high proportions of infants born at low

birthweight; low rates of early and continuous prenatal care among pregnant women; erosion of major public health programs despite high poverty rates among women and children; and an increase in the numbers of families with children without health insurance.

As a result of the bleak health conditions facing many poor families with young children, programs have been developed by researchers and communities to try to reach families with needed services. Starting in the 1970s, a new concept of family-centered maternity care was endorsed by health professionals and institutions (Shonkoff, 1987). These providers expanded the definition of their role beyond physical caregiving to include identification of and adaptation to psychosocial needs of the mother, the family, and the newly-born child.

More comprehensive programs were developed through the 1980s to support high-risk and low-risk families from pregnancy through the first few years of life. These programs typically defined their role as helping families make the transition to parenthood and promoting healthy family functioning. In addition to preventive medical services and referrals for consultation and illness, these programs sometimes added components in mental health services, child care information and referral, play groups, and early cognitive and socio-emotional stimulation activities.

Programs designed for low-risk families typically have relied on the family to initiate contact, although some hospital-based programs routinely reached out to all families who have delivered at their facility (Shonkoff, 1987). Programs designed to reach at-risk families, whether due to premature delivery or social or economic disadvantage, are more likely to initiate the contact. In addition, programs for at-risk families are more routinely set up to provide regular home visits to families, since these families are unlikely to seek out or utilize institutionally based services.

Two demonstration programs that provided relatively intensive services for families with very young children have also been rigorously evaluated: the "Prenatal/Early Infancy Project" (Olds, Henderson, Tatelbaum, & Chamberlain, 1988a; Olds, Henderson, Tatelbaum, & Chamberlain, 1988b) and the "Gutelius Child Health Supervision Study" (Gutelius, Kirsch, MacDonald, Brooks, & McErlean, 1977; Gutelius, Kirsch, MacDonald, Brooks, McErlean, & Newcomb, 1972). These programs have many of the components of "comprehensive" programs reviewed in the next section. They are distinguished by their focus on the provision of health services and staffing by health professionals.

The Prenatal/Early Infancy Project and the Gutelius Child Health Supervision Study

The University of Rochester's Prenatal/Early Infancy Project was designed to influence both the health outcomes of infants and toddlers and the parent-child relationship (Olds,

Henderson, Tatelbaum, & Chamberlain, 1988b). Four hundred low-income women, pregnant with their first child, living in a semi-rural community, were randomly assigned to one of four treatment groups. Three groups received vouchers for free transportation to regular prenatal and well-child physician visits. Two of those groups also received home visits from nurses: one group received an average of nine visits during pregnancy only, and the other group received visits during pregnancy and about 30 visits over the first two years of the child's life.

During home visits, nurses provided information and support on parenting skills, how to expand mothers' informal support systems, and how to establish and maintain contact with local health and human service agencies. Children in all groups received regular sensory and developmental screening.

The Gutelius Child Health Supervision Study intervention was similar to the postnatal portion of the Prenatal/Early Infancy Project, although the sample populations differed somewhat, and the Gutelius intervention home visits were more tightly focused on promoting parenting skills to enhance children's cognitive development (Seitz, 1990). A sample of 95 urban teenage mothers, pregnant with their first child, were randomly assigned to an experimental or control group for the three year study. Experimental group mothers received one home visit from a nurse during their seventh month of pregnancy and 24 home visits postnatally during the three year study. The nurse provided a cognitive stimulation program and parent counseling during the one and a half hour visits. After the children were born, they received complete well-child care for the first three years in a mobile home parked outside their house. The same pediatrician and nurse provided services throughout the project. Further, 16 support group sessions were conducted during the first year. Control group mothers received a prenatal visit in the seventh month. Control group children were referred to the nearest well-baby clinic and examined once during the neonatal period and yearly thereafter, with appropriate additional referrals made at that time.

Findings from Maternal, Infant, and Toddler Health Interventions

The Prenatal/Early Infancy Project intervention documented a wide range of positive results regarding mothers' social and economic well-being and parenting behavior and resulting health outcomes for newborn children (Olds, Henderson, Tatelbaum, & Chamberlain, 1988a; Shonkoff, 1987; Seitz, 1990). Among their many findings, the most striking relate to birth and life skill outcomes for very high risk mothers in the intervention group who received home visits. The mothers in the intervention group had significantly fewer preterm births, delivered larger babies, had fewer subsequent pregnancies, and returned to high school more often or were employed for longer periods than the mothers in the contrast groups. In addition, women in the longer-term treatment group had fewer reported incidences of child

abuse and neglect and were observed to provide more appropriate play materials and be less restrictive and punishing than the women in the contrast groups. These findings are consistent with the key intervention components and the training of program staff: direct provision of health services, life skills development for parents, and parent education.

The Gutelius Child Health Supervision Study also found positive outcomes for mothers' parenting behavior as a result of the intervention (Olds, Henderson, Tatelbaum, & Chamberlain, 1988a; Olds, Henderson, Tatelbaum, & Chamberlain, 1988b). Experimental group mothers were observed to engage in more conversation with their children, respond more appropriately to their children's behavior, and report fewer behavioral problems with their children than control group mothers. Changes were also found in larger dimensions of family well-being. More mothers in the experimental group than in the control group continued their education during the intervention period. Husbands of experimental group mothers were more likely to remain at one job during the intervention than their control group counterparts.

The Gutelius Study also found positive effects for experimental group children's intellectual achievement. Unlike the findings from the Yale Child Welfare Study, the Gutelius researchers found experimental group children to have higher DQ (Developmental Quotient) and IQ scores than control group children at the end of the intervention. We don't know whether these differences were sustained over time among Gutelius study intervention children.

These results support the broad findings of evaluations of other family education and support programs and early intervention programs. The health programs reviewed here combined the home visiting characteristics of the family support programs with a direct health intervention with infants and toddlers. They confirm the findings that home visiting, when conducted by a professional with clear goals, can have positive results in promoting positive behavior and bolstering life skills among parents as well as positive cognitive, social, and health outcomes with the children.

Given the centrality of health to very young children's cognitive, social, and emotional development, it is rewarding to document the positive effects of these health interventions. While it is impossible to tease out how much these health improvements themselves lead to improvements in developmental outcomes, these programs demonstrate the positive interactive and/or cumulative effects of combining health interventions with other developmental interventions. Given the well-documented problems children experience with learning when they have inadequate health care, it is rewarding to document the positive results health interventions can have in promoting children's cognitive and social as well as physical development.

A Note on European Health Programs

Reaching families with very young children with needed health services is a matter both of providing the services and providing mechanisms for families to access those services. The models discussed above assured both dimensions of this need were met for intervention families. It is interesting to observe how European nations achieve the goal of reaching virtually all pregnant women, infants and toddlers with necessary preventive, acute, and emergency services. They do not typically integrate the delivery of services in the manner of the models reviewed above (The American Academy of Pediatrics, et al., 1990; Miller, 1987; Williams & Miller, 1990). Instead, they assure universal availability of all prenatal and early childhood health care and then actively provide incentives or outreach to bring in families that do not go to the services on their own.

Broadly defined, there are three parts to European maternal and child health programs and policies: prenatal and maternity care, preventive child health, and public health systems (Miller, 1987; Williams & Miller, 1990). Prenatal and maternity care policies usually include an officially required and/or recommended number of prenatal visits. Financial incentives, in the form of a maternity allowance, are sometimes offered to encourage women who might not otherwise utilize such services to seek them out. These services typically consist of a system for guaranteeing a free or low-cost source of prenatal care and a general practitioner, obstetrician, and/or midwife of choice to provide that care. Nurses and nurse-midwifes often conduct outreach to families that do not seek necessary services. These health professionals provide counseling and referral services as well as direct care.

Preventive child health programs, like prenatal and maternity care programs, usually revolve around an official policy of a required and/or recommended number of well-child visits and immunizations. Access to care is guaranteed either through free-standing public clinics whose sole mission is to provide preventive child health services or through free or low-cost independently operated services. All needed services are available: from regular immunizations to dental care to specialized mental health and disability services.

That all other industrialized nations, except South Africa, have public health programs that assure a continuous source of acute and emergency health care is well known (Hughes, Johnson, Rosenbaum, Simons, & Butler, 1987). What is perhaps less widely understood is that many countries provide preventive maternal and infant care as an independent service whose mission includes outreach and tracking (The American Academy of Pediatrics, et al., 1990; Miller, 1987; Williams & Miller, 1990). This is particularly true in countries that needed to reduce very high post-World War II infant mortality rates. Children are often linked, starting at birth, to tracking systems designed to monitor their regular use of well-child care and immunization programs. Children who do not participate or who through

these visits are found to be at risk for developmental delays are typically visited by medical or social service professionals. Thus, while all children have access to acute or emergency care because of its availability at low-cost or free of charge, systems are in place to identify and help children at risk of health problems so that they do not enter the system when they are already at a time of crisis.

To date, no studies have used comparable variables and measures to compare the effectiveness of these more universal programs to the mix of services found in the United States. The evidence we have for their effectiveness is in the lower rates of illness, injury, and death in European nations with such programs as compared to this country (The American Academy of Pediatrics, et al., 1990; Miller, 1987; Williams & Miller, 1990). At a minimum, these tripartite systems for assuring preventive, acute and emergency health care for pregnant women and very young children point to possible methods for delivering care in this country on a wider scale than local or regional replication of model programs.

Comprehensive Support Programs for Families with Very Young Children

Given the promising success of more narrowly defined early intervention and family support efforts, several projects were developed in the late 1970s and 1980s that combined direct interventions with children, such as cognitive stimulation/early education programs, with family support and parenting education, often in the form of home visiting (Weiss, 1988; Weiss & Jacos, 1988). These programs have provided new insights into the impact of targeting the child and family as a unit, with separate but complementary interventions (Weiss, 1988).

Three model comprehensive programs developed, demonstrated and evaluated by researchers are particularly interesting for the intensity of the interventions, their focus on health, early education and parenting, and, in two cases, the existence of longitudinal follow-up work documenting post-intervention effects. These are the "Syracuse University Family Development Research Program" (Lally, Mangione, Honig, & Wittner, 1988), the "Infant Health and Development Program" (1990), and the "Project CARE" (Wasik, Ramey, Bryant, & Sparling, 1990) initiatives.

Syracuse University Family Development Research Program

The Syracuse University Family Development Research Program (FDRP) began in the late 1960s by researchers at Syracuse University concerned with breaking the well-documented cycle of poor educational outcomes for children from low-education and low-income households (Lally, Mangione, Honig, & Wittner, 1988). Unlike other major demonstrations of the time, the FDRP offered a comprehensive range of educational, nutritional, health and

safety, and human service resources to families beginning prenatally and lasting until children entered elementary school. The 108 sample families had extremely low incomes, mothers had a mean age of 18 years, and more than 85% were single heads of households. The program had two main components: a pioneering child care and educational facility for infants and toddlers as well as preschool-aged children that infants attended half-day and children over 18 months attended full-time, and a strong parent education program including weekly home visits by paraprofessionals. The project strongly encouraged other parent activities, including the formation of a parent organization. The project also emphasized staff skills as integral to program success, and organized ongoing staff development and communication activities for all staff, from caregivers and home visitors to research staff and bus drivers. Evaluations were initially conducted at 36 and 60 months and then again ten years after school entry age.

The Infant Health and Development Program

The Infant Health and Development Program (1990) is an eight-site national clinical trial designed to evaluate the efficacy of a comprehensive early intervention in reducing the developmental and health problems of low birth-weight (e.g., under 2500 grams), premature (e.g., earlier than 37 weeks) infants. The intervention consisted of pediatric follow-up, home visits, parent group meetings, and child attendance at a child development center. Nine hundred eighty-five infants were randomly assigned to two groups. The intervention children attended a child development center five days a week starting at 12 months and continuing to 36 months and their parents received health and developmental information and family support through weekly home visits for the first year and biweekly visits thereafter. Both intervention and control children received pediatric follow-up, with medical, developmental and social assessments and referrals. A first wave of results is currently available, and a longitudinal follow-up study is planned.

Project CARE

Researchers at the Frank Porter Graham Child Development Center at the University of North Carolina designed Project CARE in the late 1970s as a follow-up study to their earlier Abecedarian project (Ramey & Haskins, 1981; Ramey, Bryant, Campbell, Sparling, & Wasik, 1988). They were influenced by the growing evidence on the important role of parents in children's development and the success of home-based interventions. As a result, they developed an intervention in which 65 families were randomly assigned to one of three groups at the time of their child's birth.

All of the selected families had infants considered at risk for developmental delay because of the educational or social disadvantage of their families. For one intervention group,

families received weekly visits by a professional parent educator while their child attended an early educational program. A second intervention group received the home visits only, while the control group participated in neither program. The project did not include a group that received an educational intervention only, because such an intervention group had been the focus of the original Abecedarian project.

Findings from Comprehensive Family Support and Early Interventions

The early Syracuse FDRP findings showed that children initially (at 36 months) scored higher on measures of cognitive and intellectual functioning, but that these differences disappeared towards the end of the program (at 60 months) (Lally, Mangione, Honig, & Wittner, 1988). However, higher levels of socio-emotional functioning among experimental group children at 36 months, as compared to control group children, were sustained through kindergarten. Erosion of this pattern began in first grade, when children in the experimental group showed both more positive and more negative behavior towards adults.

Significantly, researchers came to similar conclusions regarding the effects of the school environment on children's behavior as other investigators of early cognitive interventions. They hypothesized that the children's expectations that they would continue to receive the high levels of personalized attention that they had received in their high quality early education programs were not met and their response was to "act out," according to their new teachers' standards.

The ten-year follow-up to the Syracuse study complemented earlier findings from other early educational interventions with older children: they found positive long-term impacts on children's social functioning and on girls' school performance (Lally, Mangione, Honig, & Wittner, 1988) While the Syracuse children were still relatively young at the time of the follow-up for identification of juvenile delinquency, experimental group children tended to express more positive feelings about themselves, take a more active approach to personal problems, and see schooling as a vital part of their lives. Significantly, family interview data indicated that families in the intervention group tended to value prosocial attitudes and behavior, education, and family unity.

The fact that boys did not benefit from the intervention on a long-term basis with regard to school functioning is a disquieting result. Unfortunately, this finding confirms other studies that have concluded boys have more difficulty with school adjustment than girls of the same age. The Syracuse researchers suggested that their intervention may not have been strong enough to counter the elementary school experience which many boys find restrictive and rife with academic failure. They propose that the intervention's effects would have been

enhanced had it lasted in some form through a later period in children's lives. Findings from the Abecedarian Project, discussed earlier, support this conjecture.

In general, the Syracuse investigators believe that they did not sufficiently consider the powerful influence of the community and its institutions on children, particularly with regard to the transition to school. While they note that they cannot conclusively separate out the effects of parent participation and education from the effects of the child-targeted intervention, they believe that the long-term effects of the intervention were due at least in part to the lasting impact of parent intervention. They propose that the parents' learning regarding child development and the parent-child relationship influences their parenting skills and behaviors as their children grew older. As such, the Syracuse study substantiates the theory that child and parent focused interventions ought to be combined to maximize the short and long-term impacts of these interventions. It also confirms that family support interventions cannot completely overcome all of the negative effects of conditions within many poor neighborhoods, such as schools with inadequate resources to cope with the special needs of disadvantaged children.

The early findings from the Infant Health and Development Program (1990) demonstrate that a comprehensive intervention can have significant positive effects even with biologically vulnerable children. The first wave of results is similar to those found in other evaluations of cognitive stimulation and family support programs. Investigators found that the intervention group of children had higher mean IQ scores than the control group, had significantly fewer maternally reported behavior problems, and had a small, but statistically significant, increase in maternally reported minor illnesses for the lighter birth-weight group only, with no difference in serious health conditions.

The magnitude of these effects was lower for two subgroups of intervention children. Children with very light birth-weight (under 1500 grams) and IQ scores less than 70 show fewer gains. Similarly, children at one site where there was a large proportion of college-educated mothers and a relative abundance of community resources had non-significant improvements in cognitive development as compared to control children at that site. Researchers speculate that the intervention did not add as significantly to the parenting skills and behaviors of these middle-class mothers as it did to the mothers from lower socioeconomic groups.

The findings from Project CARE are particularly important in that they highlight many of the problems experienced by evaluators of early interventions and family support programs. Overall, Project CARE investigators achieved results not entirely consistent with other studies of family support interventions. Yet, significantly, in their analysis of differences in program features between this study and earlier work, the Project CARE researchers suggest that the

inconsistencies in these findings are the result of programmatic differences rather than contradictory program effects.

The Project CARE researchers found that children who participated in the educational program performed better on measures of cognitive performance up to age three than the children who did not attend the intervention program but whose parents received home visits, a finding consistent with earlier work. However, unlike findings in other projects (Garber, 1988; Seitz, 1990; Ramey & Haskins, 1981; Ramey, Bryant, Campbell, Sparling, & Wasik, 1988), children who attended the educational program did not perform consistently higher than control group children. The researchers believe this was because many control group children participated in community child care programs. Control group children who did not participate in community child care scored lower than children in the intervention group who participated in the educational intervention. This is an intriguing hypothesis that would encourage policies that seek to build on existing community institutions.

Another surprising finding was that the addition of a home visiting parent education component did not produce expected improvement in the home environment or change parent attitudes. Further, the home visit family education component did not affect either the children's or the parents' behavior.

The investigators believe these findings are the result of weak program features. For example, other researchers (Olds, Henderson, Tatelbaum, & Chamberlain, 1988a) have found that beginning home-based interventions during pregnancy rather than post-partum, as in the Project CARE intervention, can lead to significant differences in the program's ability to influence families. Similarly, Powell and Grantham-McGregor (1989) have found in their work with poor, immigrant families that home visits must be at least once per week to achieve a substantial impact on children's development. Although Project CARE planned weekly visits, the actual number of visits averaged 2.5 per month in the group receiving only family education, and 2.7 for the group receiving family education and a developmental program for their children. Another factor that has proven to be critical in home-based family support programs is the training and supervision of the home visitors (Wasik, Ramey, Bryant, & Sparling, 1990).

We believe that the regular and extended use of home visiting is a vital component of comprehensive programs, in keeping with findings from the evaluations of family support and education programs reviewed here other than Project CARE. Across all of the other evaluations, these visits provided the necessary support, encouragement, and resources to families to permit them to develop and use social support networks in ways that promoted positive developmental outcomes for children. This was true to at least some extent whether

the home visitors were lay workers (i.e., in the CFRP and Syracuse programs), social workers (i.e., in the Yale program), or nurses (i.e., in the Rochester, Gutelius, and the Infant Health and Development programs).

The findings from evaluations of comprehensive programs are reassuring. They suggest that the various interventions for very young children and their families that researchers have identified as important to enhancing children's developmental outcomes appear to complement and fortify one another. Although we still do not know how much of each intervention each family might optimally benefit from or minimally require, research supports the intuitive assumption that making a range of quality services available in a variety of forms to both parents and their very young children results in cumulatively more positive results for all family members.

Family Policy

This paper is focused on model programs for high risk families with infants and toddlers. We believe it is vital to place this discussion in the context of broader family policies, and that it is the interaction of these programs and policies that ultimately determine the experience of families with young children. The combination of influences represents the broader community response to the needs of families with very young children that must be understood to appreciate the role of direct program interventions. We discuss European programs here because they provide the perspective of more highly developed policies than currently exist in this country and may provide models for future policy development.

Many family policies play a critical role in helping families in their work to enhance their children's healthy development. Family policies are defined here as government programs explicitly targeted to assist families with infants and toddlers with childrearing. Kamerman and Kahn (1990) have identified six types of family policies found in industrialized nations and common features of such policies among western European nations:

> Child or Family Allowances. Cash benefits or payments to families with children. These are usually flat rate, with specific amounts per child, sometimes varying regardless of labor force attachment of either parent. Additional allowances are often available to poor and single-parent families and families with special needs children.
>
> Maternity and Parental Leaves. Paid leave during period of unemployment immediately after birth, regardless of income, combined with job protection.
>
> Child Support. Public guarantee of a minimum child support benefit through strict enforcement of laws and substitute payment when necessary.

Housing Allowances. Cash supplements to aid in payment of rent, property taxes, or other costs of home ownership or subsidized rents. These are usually income tested.

Child Health Care or Insurance. Programs include both preventive and acute care services.

Child Care Services. Availability and quality promoted by the state and costs subsidized, with fees often conditioned according to income.

These policies can be broadly characterized as having one of three general goals: to provide cash supplements to cover the costs associated with childrearing; to provide income replacement and job protection for employed mothers during a period of unemployment or reduced employment associated with childbirth or the raising of very young children; or to offer direct services to assist in caring for children (Kamerman, 1980).

In most western European nations, direct service programs exist with universal or near universal coverage which provide many or all of the program components identified in this paper as important to the support of families with at risk infants and toddlers: early cognitive and education programs, family support and home visiting, and preventive and acute health services. Some have explicit preparatory or remedial functions, like the programs reviewed here, but most are available and implemented to be available to all families as preventive, supportive measures.

Very few studies in Europe have sought to assess developmental outcomes associated with these programs, but global measurements of child well-being from nations with such programs suggest that these programs are associated with higher levels of child health and development than in this country (e.g., lower rates of infant mortality and morbidity) (Kamerman, 1981, 1990; Miller, 1987; Williams & Miller, 1990). Significantly, the types of programs implemented on a very large scale in Europe are similar to the types of programs evaluated in this paper that have been shown to improve developmental outcomes for at risk infants and toddlers in this country (Kamerman, 1980; Kamerman, 1981; 1990; Miller, 1987; Williams & Miller, 1990).

The two most significant effects of family policies that involve income supplementation or replacement are to reduce poverty and to temporarily free parents, particularly mothers, to provide direct care for their children. Supplementing the income of families with young children has a long tradition in many European nations, often dating to employer programs implemented during the Industrial Revolution (Kamerman, 1980). However, the definition of childbirth as a social risk for which families may require a cash benefit as income

replacement for temporary maternal unemployment or underemployment (e.g., maternity or parental leave) is a more recent phenomenon that emerged in the post-World War II period. Similarly, in the post-war period, many nations determined that families with young children often required additional support to provide adequate care for their children in the areas of health and housing. Changing family structures in the past 25 years also convinced many European policy makers that single parents frequently require the protection of guaranteed child support and/or higher than average income supplementation to assure an ability to keep these families with young children out of poverty.

Unfortunately, no studies are available that document the developmental impact for children of the income transfer programs available in Europe. However, these programs have been documented to reduce rates of poverty among families with young children in Europe (Joint Center for Political and Economic Studies, 1991). In Europe, as in this nation, better developmental outcomes, including school success, are associated with improvements in economic well-being.

A review of the full range of family policies that exist in this country is beyond the scope of this paper. It should be noted, however, that a majority of programs are directed towards low-income families, such as the Head Start program and Aid to Families with Dependent Children. The child care tax credit is an important exception, with more middle-class families benefiting from this program than lower income families. The scope and scale of both income support programs and direct service programs remain far more modest in this country than other Western nations. More important than the recitation of lists of programs is the tallying of the too well-known results: in a battery of educational and developmental measures, children in this country are shown to be more likely to live in poverty, perform less well in school, and have worse health outcomes than children in many European nations.

Conclusion

The results of this review provide evidence that model programs in the areas of early education and intervention, family support, and health can be effective in promoting the healthy mental, social, emotional, and physical development for at risk infants and toddlers. These types of interventions are able to provide a solid foundation for children and their families so that these young children are academically and socially prepared to make successful transitions to school.

It is our conclusion that the most effective way to foster healthy development within the first three years of life that also has lasting effects is to combine direct intervention with children with the building of parent competence. Direct interventions with children foster developmental and learning gains. Enhancing parent competencies improves their ability to provide and sustain the effects of cognitive, social, and health interventions for their child.
As documented in this report, the interventions that are most productive include a comprehensive set of services for both children and parents that extend over several years. Early cognitive and education programs can effectively provide very young children with intellectual, social, and emotional stimulation. Family support programs usefully deliver to parents information regarding infant and toddler development and parenting skills, links to and counseling about community and social supports, and life skills training. Preventive and acute health care services enhance the well-being of pregnant women, infants and toddlers.

Notably, our review appears to support an important and growing body of research that suggests social support networks may buffer mothers and other family members from negative community effects and serve an educational function, enhancing the quality of the mothers' child-rearing behavior (Cochran & Brassard, 1979; Cotterell, 1986). It is our belief, based on evaluations of this wide range of programs, that the home visiting component of many of these interventions provided a vehicle by which the families were able to establish and utilize social support networks in their communities. A recent federal report (United States Government General Accounting Office, 1990) evaluated early intervention programs that use home visiting. Their findings corroborated others' work and asserted that home visiting is a "promising" and cost effective strategy that can improve both the short and long-term health and well-being of children and families.

Each component of such interventions brings an important positive effect for the families, but it is our belief that it is the cumulative and interactive effects of multiple supports to the family over a sustained period that appear to offer the greatest benefit. Thus, while cognitive stimulation programs beginning at birth can lead to higher IQ scores and better school adjustment, these positive effects appear to be enhanced over the long term by family education and support programs that provide parents with the skills and encouragement to promote their children's development and learning. Similarly, home visiting programs that provide parents with training both in life skills and parenting competencies can enhance the family environment in which a child lives by creating positive effects both on parents' educational and job attainments and on parenting behaviors and mother-child interactions.

It is important to stress that these program evaluations confirm the findings of the developmental literature regarding the conditions under which children under three are able to thrive and learn. Each documents the fact that the needs of infants and toddlers are best met when programs adopt an ecological perspective in which the contributions and needs of

the child and family are recognized and met within the context of the community. Specifically, the intervention efforts that appear to have the greatest long-term effects acknowledge that infants and toddlers are active learners; that the quality of the caregiving activities of parents and other caring adults is important in fostering the child's social and academic competence; and that the mental, social, and emotional development of infants and toddlers is optimized when the child is physically healthy. Our cultural belief in the important role parents and early experiences have in influencing the short and long term developmental outcomes for children is confirmed in the findings of the program evaluations.

The findings of the evaluations also show that the learning and developmental needs of infants and toddlers and their families are best met with comprehensive programs of educational intervention and support, where the full range of services is available to address the full range of family needs. The evaluations confirmed the value of assuring the availability and quality of services being provided. Despite a recent policy focus on "integrated" services, we must be careful to distinguish integration of services from basic access and quality concerns. Issues of access are critical to address when trying to reach families needing a range of services, but it is at least as important to assure that families are offered services that are adequate as far as coverage, content, duration, and intensity.

There are several caveats to this review. First, we limited our review of "community responses" to those model interventions that have been rigorously evaluated. We are aware that we excluded many innovative community efforts that are believed to be effective, but few rigorous evaluations of community-based efforts are available to inform our thinking. Second, we also limited our review to those model programs that serve at risk families with infants and toddlers, due to the dearth of information and evaluations about programs for other types of families who appear less at risk. As a nation we have necessarily focused our efforts and policies on those families most in need. However, experts, service providers, and policy makers increasingly acknowledge that at times all families need some type of community resources as they raise their children.

Third, we must respect that these programs cannot respond to or solve the full range of challenges and problems that face at risk families with very young children. Although we understand that these programs can positively influence many significant concerns, from child and maternal health to academic and social competence, program effects appear to be mediated both in the short and the long-term by a broader environmental context. Environmental factors such as community violence, drug addiction, and debilitating poverty must be addressed through other means.

We emphasize this caveat particularly in relation to very young children's transition to preschool and school. A disturbing pattern of erosion in positive intervention effects can be

found among children, especially boys, who enter public schools in poor communities. Further work needs to address what elements of the school environment lead to declines in children's well-being and attainment, such as academic grouping and tracking practices, teacher expectations, and cultural congruence between children and their teachers.

There are many unanswered or only partially answered questions resulting from our exploration of how communities do and can influence families' ability to care for, nurture, and foster learning and development in their children birth to age three. The questions range in focus from broad theoretical issues about learning, family support, and the role of neighborhoods to relatively refined design and measurement concerns. Some might best be explored through further development of model demonstration and evaluation programs, others by a rigorous examination and evaluation of existing community-based programs. Future work in this area would benefit from the use of interdisciplinary teams of researchers to develop collaborations between field-based research teams and local community agencies.

Given the wealth of rigorous work that has been done and is being done, both in research and in the field, the key to future success will be to build on our current strengths: our knowledge, our program base, and our human resources of practitioners and researchers. Fortunately, we already have enough compelling research evidence to merit developing and expanding existing programs and policies based on the kinds of programs reviewed in this paper.

Future Directions

It will take numerous demonstration studies and evaluations to answer all of the questions that remain to be answered about how to best foster lasting improvements in learning and other aspects of healthy development for infants and toddlers. Below are a list of questions that grew out of this review that point to potentially useful lines of inquiry.

Theoretical and Conceptual Issues

How should neighborhoods and communities be defined for research in interventions with infants and toddlers?

On what dimensions should and can we define family support for families with very young children: duration, intensity, inclusiveness, sensitivity, responsiveness, or other?

If we view family support not as a program type, but rather as a strategy that uses components of other programs (e.g., home visiting, early educational interventions), how do we evaluate program effectiveness vis-a-vis children, families and the community?

How should quality be defined for family support programs? How can this definition be operationalized to evaluate the impact of variations in quality on different sorts of children and families?

How can we best use family support and education programs as a testing ground for theoretical work regarding ecological theories of child development?

What are the most efficient mechanisms for identifying unintended negative consequences of interventions with families and their very young children?

What are the trade-offs in program effectiveness between broader, community responsive goals versus narrower, outcome driven goals for family support programs?

What would be the effects on program design, effectiveness and community impact of expanding family support programs from targeted (usually to at risk) to universal coverage?

Sociological/Environmental Issues

It is generally acknowledged that social support networks have practical utility as a mediator between the family and broader community, but how do families establish and extend their networks and how do they gain access to specific support through them?

How do families' abilities to make contacts and build networks vary by community?

How do families' networks help them access community resources? In what ways do family characteristics determine whether a family accesses the resources from which they would benefit?

How well do community institutions use networks to reach families with available services?

How can and do these institutions build upon the positive effects of kith, kin, and neighborhood networks?

What are the differences between the resources provided by community institutions and those provided by informal networks of kith, kin and neighbors?

How can formal supports be linked up with informal supports?

How does a family's level of informal support affect its ability and "need" to access more formal supports? (There is evidence that middle-class families tend to access more community services even though they already have more informal supports.)

How do and should family support programs fit into existing education, health, and social service agencies?

The relationship between programs and their context is unclear. How is replication affected by community base and other factors in the new community location?

Most research to date has focused on whether there are community effects on children's development. What variables are particularly significant influences on family and child outcomes? What are the size of those effects? How do those variables influence children's development?

How do informal neighborhood networks of support influence parenting competencies, styles, beliefs and behaviors?

What, if any, are the community-level effects of family support programs? Are there "spillage" effects, whereby the programs influence non-intervention families through their networks with intervention families? To what extent are these effects the result of program coverage?

How do community factors affect program participation? To what extent do demographic, social or other neighborhood characteristics determine program usage?

What is the impact of family support programs on the availability and use of community resources? Similarly, how does the mix and coverage of services available in a community affect program outcomes?

Program Design

What mechanisms could be established to assure that pregnant women and children are identified for needed family support and intervention services?

All families need support but do all families need a family support program? Which families need which programs?

What are the sociological dimensions of community-based interventions (e.g., program leadership, staff mix, preexisting agency climate) and what are their impacts on program effectiveness?

What is the significance of a child's age at entry, and the length of the family's and/or child's participation in a program, on developmental outcomes?

How do variations in program design, including duration and intensity of treatment, affect program processes as well as outcomes?

Given perennial funding constraints, to what extent is it possible to identify what components are important to which types of children, communities, or families, and at what minimum levels these services need to be provided?

Although a common rationale for program development is the changing nature of family characteristics, what are the differential needs of differently structured families, such as families with working mothers, single parents, or teen parents? Similarly, what are the needs of families of different ethnicities or race? While developmental needs do not change, in what ways should mediating cultural and community variables influence program design?

We do not know very much about the beliefs of poor families or non-white families regarding child development. How do or how should these beliefs influence program design?

To what extent are existing programs responsive to diverse cultural values and parenting styles?

How do the economic characteristics of families affect the design of family support programs?

Given the limited research on the role of fathers in family life and children's development, how could family support programs positively influence that role?

How do programs successfully integrate health, social service, transportation, education and other program components?

Program Implementation

We need to know more about how the quality and training of staff impacts on program outcomes. How effective are staff members working in domains other than those of their primary training (e.g., when nurses provide life skills training)? How can medical, early

education/child development, social service, and community-based personnel best work together to achieve their respective and mutual goals regarding the family's well-being? We need more information on how staff recruitment, training and supervision affect program outcomes. Is there an optimal training base for home visitors?

How should the timing and frequency of home visits be structured to produce the best results?

How do the setting of intervention program goals and components impact upon program outcomes?

How do family and child characteristics condition program participation? Which families are attracted to family support programs and who remains with these programs over time?

What are the costs of service provision, and what are the relationships between program characteristics, variations in cost, and variations in benefits?

What mechanisms are necessary to guarantee that pregnant mothers and their children receive needed preventive and curative health services?

How can better transitions be made from early care and preschool programs to school programs to prevent the erosion of the positive effects of early interventions?

Measures, Program Outcomes, and Replicability Issues

We need to develop better measures of parental and family functioning. These need to be conceptually and psychometrically adequate and culturally sensitive. These would help us understand both program effects and the underlying processes that lead to these effects.

We need to develop instruments that more simply define and measure changes in perceived and actual levels of support as either mediating or outcome variables. In addition, we need to explore the possibility of causal relationships, not just correlational ones, between program components and family outcomes.

We need to develop measures of environmental stress in families' lives.

We need to better understand how program process variables effect program outcomes?

Most studies to date have relied primarily on the "strange situation" measure and standardized IQ tests. Development and use of a greater variety of assessment tools would help

evaluations catch up with the developmental literature regarding the rapid pace and complexity of change in the lives of infants and toddlers and their families. We need to develop conceptually and psychometrically strong and culturally sensitive measures of very young children's development. In particular, the selection of measures and dependent variables for the evaluation of interventions for infants and toddlers should be expanded beyond measures of IQ and attachment to capture ecological effects of the child, family, and community. Assessments of very young children should include measures in natural settings.

We need to understand more about differences in program effects for males and females and their implications for program design.

REFERENCES

The American Academy of Pediatrics, the National Commission to Prevent Infant Mortality, the National Commission on Children, and the House Select Committee on Children, Youth and Families. (1990). Child health in 1990: The United States compared to Canada, England and Wales, France, the Netherlands, and Norway. Pediatrics, 86 (Supplement 6), 1025-1127.

Andrews, S. Blumenthal, J., Johnson, D., Kahn, A., Ferguson, C., Laster, T., Malone, P., & Wallace, D. (1982). The skills of mothering: A study of parent child development centers. Monographs of the Society for Research in Child Development, 47, (6, Serial No. 198).

Bayley, N. (1949). Consistency and variability in the growth of intelligence from birth to eighteen years. Journal of Genetic Psychology, 75, 165-196.

Bell, R. Q. (1968). A reinterpretation of the direction of effects in studies of socialization. Psychological Review, 75, 81-95.

Belsky, J., Lerner, R. & Spanier, G. (1984). The child in the family. Chapter 4, (pp 37-58). Menlo Park, CA.

Bredekamp, S. (1987). Developmentally appropriate practice in early childhood programs serving children from birth through age 8. Washington, DC: National Association for the Education of Young Children.

Beckwith, L. & Cohen, S.E. (1984). Home environment and cognitive competence in preterm children during the first five years. In A. Gottfried (Ed.), Home environment and early cognitive development (pp. 235-271). New York: Academic Press.

Bornstein, M. & Ruddy, M. (1984). Infant attention and maternal stimulation: Prediction of cognitive and linguistic development in singleton and twins. In H. Bouma & D.G. Bouwhuis (Eds.), Attention and performance: Control of language processes (pp. 433-445). London: Erlbaum.

Bornstein, M. & Sigman, M. (1986). Continuity in mental development from infancy. Child Development, 57, 251-274.

Bronfenbrenner, U. (1979). Contexts for child rearing. American Psychologist, 34, 10, 844-850.

Bronfenbrenner, U., Moen, P., & Garbarino, J. (1984). Child, family and community. In R.D. Parke (Ed.), Review of child development research: The family (Vol. 7, pp. 283-328). Chicago: University of Chicago Press.

Christopher, G. C. (1989, April). Strengthening families: Examples of community-based family support programs that respond to public policy concerns. Paper prepared for the Public Policy and Family Support and Education Colloquium, Annapolis, MD.

Children's Defense Fund. (1991). The State of America's Children 1991. Washington DC: Children's Defense Fund.

Clarke-Stewart, K. A. (1973). Interactions between mothers and their young children: Characteristics and consequences. Monographs of the Society for Research in Child Development, 38, (6-7, Serial No. 153).

Clarke-Stewart, K. A. & Koch, J. (1983). Children: Development through adolescence. New York: John Wiley & Sons.

Cotterell, J. (1986). Work and community influences on the quality of child rearing. Child Development, 57, 362-374.

Cochran, M.M. & Brassard, J.A. (1979). Child development and personal social networks. Child Development, 50, 601-616.

Elkind, D. (1986, May). Formal education and early childhood education: An essential difference. Phi Delta Kappan, 631-636.

Frye, D. (1982). The problem of infant day care. In E.F. Zigler & E.W. Gordon (Eds.), Day care: Scientific and social policy issues (pp. 223-242). Boston Auburn House Publishing Company.

Garbarino, J., Kostelny, K. & Dubrow, N. (1990). No place to be a child: Growing up in the war zone. Lexington, MA.: Lexington Books.

Garbarino, J., Schellenbach, C. & Kostelny, K. (1987). A model for evaluating the operation and impact of family support and child abuse prevention programs in high risk families. (Available from James Garbarino, Erikson Institute for Advanced Study in Child Development, Chicago IL.)

Garber, H.L. (1988). The Milwaukee Project: Preventing mental retardation in children at risk. Washington, DC: American Association on Mental Retardation.

Gephart, M. (1989). Neighborhoods and Communities in Concentrated Poverty.(Items No. 43, 4, pp. 84-92). New York: Russell Sage Foundation.

Goodnow, J.J. (1982). Parents' ideas about parenting and development: A review of recent work. In M. Lamb, A. Brown, & B. Rogoff (Eds.), Advances in developmental psychology (p. 3). Hillsdale, NJ: Erlbaum.

Gutelius, M.F., Kirsch, A.D., MacDonald, S., Brooks, M.R., & McErlean, T. (1977). Controlled study of child health supervision: Behavioral results. Pediatrics, 60, 294-304.

Gutelius, M.F., Kirsch, A.D., MacDonald, S., Brooks, M.R., McErlean, T., & Newcomb, C. (1972). Promising results from a cognitive stimulation program in infancy: A preliminary report. Clinical Pediatrics, 11, 585-593.

Halpern, R. (1990). Community-based early intervention. In S.J. Meisels & J.P. Shonkoff (Eds.), Handbook of Early Childhood Intervention (pp. 469-498). New York: Cambridge University Press.

Hamburg, D. (1990). Meeting essential requirements for healthy development in the first few years of life. Essay prepared for Carnegie Corporation meeting, New York, NY, December 17-18, 1990.

Honzik, M.P. (1983). Measuring mental abilities in infancy: The value and limitations. In M. Lewis (Ed.), Origins of intelligence in infancy and early childhood (pp. 67-105). New York: Plenum.

Hughes, D., Johnson, K., Rosenbaum, S., Simons, J., & Butler, E. (1987). The health of America's children: maternal and child health data book. Washington, DC: The Children's Defense Fund, Adolescent Pregnancy Prevention Prenatal Care Campaign.

The Infant Health and Development Program. (1990). Enhancing the outcomes of low-birth-weight, premature infants. Journal of the American Medical Association, 263 (22), 3035-3042.

Johnson, D.L. (1988). Primary prevention of behavioral problems in young children: The Houston Parent-Child Development Center. In R.H. Price, E.L. Cohen, R.P. Lorion, & M. Ramos-McKay (Eds.) 14 ounces of prevention: A casebook for practitioners (pp. 32-43). Washington, DC: American Psychological Association.

McFate, K. (1991). Poverty, inequality and the crisis of social policy. Washington, DC: Joint Center for Political and Economic Studies.

Kagan, J. Kearsley, R., & Zelazo, P. (1978). Infancy: Its place in human development. (pp.1-51). Cambridge, MA. Harvard University Press.

Kamerman, S.B. (1980, November). Child care and family benefits: Policies of six industrialized countries. Monthly Labor Review, 23-28.

Kamerman, S.B. (1981). Child care, family benefits, and working parents: A study in comparative policy. New York, NY. Columbia University Press.

Kamerman, S.B. & Kahn, A.J. (1990, March-April). The possibilities for child and family policy: A cross-national perspective. Childcare Actionews, 7, 1, 6-7.

Klerman, L. (1990). Alive and well? A research and policy review of health programs for poor young children. New York: National Center for Children in Poverty.

Kopp, C.P. & McCall, R. B. (1980). Stability and instability in mental performance among normal, at-risk, and handicapped infants and children. In P.B. Baltes & O.G. Brim (Eds.)., Life span development and behavior (Vol. 4, pp. 33-61). New York: Academic Press.

Lally, R.J., Mangione, P.L., Honig, A.S., & Wittner, D.S. (1988, April). More pride, less delinquency: Findings from a ten-year follow-up study of the Syracuse University Family Development Research Program. Zero to Three, 13-18.

Lamb, M. & Campos, J. (1982). Development in infancy. (pp. 7-10), New York, Random House.

Lazar, I., & Darlington, R. (1982). Lasting effects of early education: A report from the Consortium for Longitudinal Studies. Monographs of the Society for Research in Child Development, 47, (2-3, Serial No. 195).

Miller, C. A. (1987). Maternal health and infant survival. Washington, D.C.: National Center for Clinical Infant Programs.

Olds, D.L., Henderson, C.R., Tatelbaum, R., & Chamberlain, R. (1988a). Improving the delivery of prenatal care and outcomes of pregnancy: A randomized trial nurse home visitation. Pediatrics, 77, 16-28.

Olds, D.L., Henderson, C.R., Tatelbaum, R., & Chamberlain, R. (1988b). Improving the life-course development of socially disadvantaged mothers: A randomized trial nurse home visitation. American Journal of Public Health, 78, 1436-1445.

Olds, D.L. & Kitzman, H. (1990). Can home visitation improve the health of women and children at environmental risk? Pediatrics, 86, 108-115.

Phillips, D. Scarr, S. & McCarthney. (1987). Dimensions and effects of child care quality: The Bermuda Study. In D. Phillips (Ed.), Quality in child care: What does the research tell us? (pp. 43-56). Washington D.C.: National Association for the Education of Young Children.

Powell, C., & Grantham-McGregor, S. (1989). Home visiting of varying frequency and child development. Pediatrics, 84, 157-164.

Powell, D.R. (1987). Methodological and conceptual issues in research. In S.L. Kagan, D. Powell, B. Weissbourd, & E.F. Zigler (Eds.), America's family support programs: Perspectives and prospects (pp. 79-98). New Haven Yale University Press.

Provence, S. (1982). Infant day care: Relationships between theory and practice. In E.F. Zigler & E.W. Gordon (Eds.), Day care: Scientific and social policy issues (pp. 33-55). Boston Auburn House Publishing Company.

Ramey, C.T., Bryant, D.M., Campbell, F.A., Sparling, J.J., & Wasik, B.N. (1988). Early intervention for high-risk children: The Carolina early intervention program. In R.H. Price, E.L. Cohen, R.P. Lorion, & M. Ramos-McKay (Eds.), 14 ounces of prevention: A casebook for practitioners (pp. 32-43). Washington, DC: American Psychological Association.

Ramey, C.T., & Haskins, R. (1981). The causes and treatment of school failure: Insights from the Carolina Abecedarian Project. In M.J. Begab, H.C. Haywood, and H.L. Garber (Eds.), Psychosocial influences in retarded performance Vol. II: Strategies for improving competence (pp. 89-112). Baltimore University Park Press.

Rescorla, L.A., Provence, S., & Naylor, A. (1982). The Yale Child Welfare Research Program: Description and results. In E.F. Zigler & E.W. Gordon (Eds.), Day care: Scientific and social policy issues (pp. 183-199). Boston: Auburn House.

Richters, J. & Martinez, P. (1991). Toward an epidemiology of children's exposure to community violence. Manuscript in preparation. Washington D.C. National Institute of Mental Health

Seitz, V. (1990). Intervention programs for impoverished children: A comparison of educational and family support models. Annals of Child Development, 7, 73-103.

Seitz, V. & Provence, S. (1990). Caregiver-focused models of early intervention. In S.J. Meisels & J.P. Shonkoff (Eds.), Handbook of early childhood intervention (pp. 400-427). New York: Cambridge University Press.

Seitz, V., Rosenbaum, L.K., & Apfel, N.H. (1985). Effects of family support intervention: A ten-year follow-up. Child Development, 56, 376-391.

Sherrod, L. (1981). Issues in cognitive-perceptual development: The special case of social stimuli. In M. Lamb & L. Sherrod (Eds.) Infant social cognition (pp. 11-32). Hillsdale, NJ: Erlbaum.

Sherrod, L. & Lamb, M. (1981). Infant social cognition: An introduction. In M. Lamb & L. Sherrod (Eds.) Infant social cognition (pp. 1-10). Hillsdale, NJ: Erlbaum.

Schweinhart, L.J., & Weikart, D.P. (1981). Perry Preschool effects nine years later: What do they mean? In M.J. Begab, H.C. Haywood, and H.L. Garber (Eds.), Psychosocial influences in retarded performance Vol. II: Strategies for improving competence (pp.89-112). Baltimore University Park Press.

Shonkoff, J.P. (1987). Family beginnings: Infancy and support. In S.L. Kagan, D. Powell, B. Weissbourd, & E.F. Zigler (Eds.), America's family support programs: Perspectives and prospects (pp. 79-98). New Haven Yale University Press.

Sigel, I. (1985). Parental belief systems: The psychological consequences for children. Hillsdale, NJ: Erlbaum.

Travers, J., Nauta, M., & Irwin, N. (1982). The effects of a social program; Final report of the Child and Family Resource Program's Infant-Toddler component. Cambridge Abt Associates.

United States Government Accounting Office (1990). Home visiting: A promising early intervention strategy for at risk families. Washington D.C.: GAO/HRD-90-83.

Wasik, B.H., Ramey, C.T., Bryant, D.M., & Sparling, J.J. (1990). A longitudinal study of two early intervention strategies: Project CARE. Child Development, 61, 1682-1696.

Weiss, H.B. (1988). Family support and education programs: Working through ecological theories of human development. In H.B. Weiss, & F.H. Jacobs (Eds.), Evaluating Family Programs (pp. xix-xxix). New York: Aldine de Gruyter.

Weiss, H.B., & Jacobs, F.H. (1988). Introduction: Family support and education programs-challenges and opportunities. In H.B. Weiss, & F.H. Jacobs (Eds.), Evaluating family programs (pp. xix-xxix). New York: Aldine de Gruyter.

Weissbourd, B. (1987). A brief history of family support programs. In S.L. Kagan, D. Powell, B. Weissbourd, & E.F. Zigler (Eds.), America's family support programs: Perspectives and prospects (pp. 38-56). New Haven Yale University Press.

Williams, B. C., & Miller, C. A. (1990, October 23). Preventive health care for young children: A ten country study with analysis of relevance to United States Policy. Unpublished manuscript, School of Public Health, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina.

Whitebook, M., Howes, C., & Phillips, D. (1990). The national child care staffing study, Who cares? Child care teachers and the quality of care in America. Oakland, CA: Child care employee project.

Young, K.T. (1991). What parents and experts think about infants. In Kessel, F., Bornstein, M., & Sameroff, A. (Eds.), Contemporary constructions of the child. (pp79-92) Hillsdale, NJ: Erlbaum.

Zigler, E. & Finn-Stevenson, M. (1987) Children: Development and social issues. (pp. 168-215). Lexington, MA: D.C. Heath.